REMARKS

Claims 1-27 are pending in the subject application prior to entry of this amendment. Of those claims, withdrawn claims 14-27 are canceled in view of the filing of a divisional application. Independent claim 1 and 7 have been further clarified and new claims 28 and 29 have been added, as supported by the specification at, for example, page 13. Similarly, new claim 30 is supported by page 16 of the specification.

Claims 1-13 are rejected under 35 USC § 103(a) as being obvious over Rigney et al. (US 6,153,313). Claims 1-13 are also rejected under 35 USC § 103(a) as being obvious over Rigney et al. in view of Rosenzweig et al. (EP 1 123 987). Claims 1-3 and 10 are rejected under 35 USC § 102(b) as being anticipated by, or in the alternative, under 35 USC § 103(a) as obvious over Conner et al. (US 6,305,077). Lastly, claims 6, 8, 9 and 11-13 are rejected under 35 USC § 103(a) as being unpatentable over Conner et al.

The foregoing rejections are respectfully disagreed with, and are traversed below.

Rigney et al. disclose a coating system employing a NiAl based intermetallic coating containing 30 to 60 atomic percent aluminum so as to be predominantly of the beta-NiAl phase, plus additional alloying additions intended to increase the creep strength of the coating. Rigney et al. are concerned with the compositional features of a bond coat useful in a thermal barrier coating system. The coating disclosed therein is also described as being suitable as an environmental coating (Col. 10, lines 18-23).

Rigney et al. do not disclose a method for repairing a coated component, as claimed herein. Rigney et al. particularly concern bond coats having a specific composition for increased creep strength, as explained above. Rigney et al. do not describe any removal and replacement of coatings with either the same or different coatings. The Rigney et al. reference concerns the application of a particularly useful bond coat to protect components upon exposure to high temperature environments to prevent creep, deterioration, etc.

Rosenzweig et al. disclose an aluminide coating system, which first requires the deposition of

a layer of elemental metal over the cleaned substrate, the deposited metal being matched to the composition of the substrate. The elemental metal, such as Ni or Co, serves as a new surface into which aluminum is subsequently deposited and a protective coating grown ([paragraph 0015]). The new protective aluminide coating is facilitated by minimizing the amount of metal diffusing from the base material to interact with aluminum to form the new aluminide coating ([0009]). It is the elemental metal layer that combines with the aluminum applied during an aluminiding treatment to form the protective aluminide coating ([0009]).

Rosenzweig et al. do not disclose a method for repairing a coated component, as in Applicant's independent claims 1 and 7, wherein a lower growth environmental bond coating is applied directly to the remaining base metal substrate of the component. In contrast, Rosenzweig et al. teach away from such an application because Rosenzweig et al. require the application of an elemental metal layer directly on its base metal substrate to prevent any interaction between the base metal substrate and a subsequently applied coating.

Rosenzweig et al. disclose that its aluminide coating system is restored during the repair process therein, without consuming the base metal of the airfoil undergoing repair. In contrast, independent claims 1 and 7 specify that a portion of the base metal substrate is removed.

Thus, Rosenzweig et al. also do not disclose or suggest Applicant's method as set forth in independent claim 1, wherein a lower growth environmental bond coating and remaining metal substrate of the component interact to form a diffusion zone. Rosenzweig et al.'s system is specifically designed to prevent such interaction by use of an intermediary layer of elemental metal between the base metal substrate and subsequently applied coating.

Similarly, Conner et al. do not disclose nor suggest the subject claims. Conner et al. disclose the repair of coated turbine components wherein after service a ceramic thermal barrier coating is removed. Thereafter, oxidation and corrosion products are removed from an underlying metallic bond coat. Then, a noble metal is applied, preferably by plating, and the noble metal is diffused by thermal diffusion, followed by aluminiding (Col. 1-2).

Conner et al. do not disclose removing a metallic bond coat, as in Applicant's independent claims 1 and 7. Conner et al. merely disclose removing oxidation and corrosion products from the metallic bond coat. Thus, Conner et al. also do not disclose removing a portion of a base metal substrate between about 1-3 mils.

Moreover, the removal of oxidation and corrosion products from a metallic bond coat as required by Conner et al. 1) does not disclose or suggest the entire removal of the metallic bond coat and 2) thus does not disclose or suggest that any underlying base metal substrate would be removed during the process. It appears that Conner et al. teach the cleaning of its metallic bond coat to rid it of oxidation and corrosion products, and then a noble metal is applied thereon. The noble metal is then diffused and aluminided to provide an outermost noble metal-Al layer.

Thus, it is respectfully asserted that Conner et al. do not disclose or suggest Applicant's step b) of independent claim 1 requiring removing a bond coat, wherein a portion of the base metal substrate between about 1-3 mils in thickness also is removed to create a remaining base metal substrate of reduced thickness.

Conner et al. also do not teach applying a lower growth environmental bond coating directly to the remaining base metal substrate after removal of the bond coat, as in Applicant's step c) of independent claims 1 and 7. In contrast, Conner et al. teach applying a noble metal to a metallic bond coat which has been cleaned to remove oxidation and corrosion from the bond coat. Thus, Conner et al. would not disclose or suggest Applicant's method as in claim 1 requiring the removal of bond coat and portion of base metal substrate followed by application of a lower growth environmental bond coating directly to the remaining base metal, wherein the remaining base metal substrate interact to form a diffusion zone.

Conner et al. are concerned with providing a protective coating buildup which exceeds the life requirements for the next engine build. More particularly, the life of the coating under service conditions is greater than the service time until the next scheduled maintenance (Col. 2). In contrast, Applicant's process enables further multiple repairs of components, which may not otherwise have been possible because of reduced wall thickness (See specification,

page 18).

Conner et al. even distinguish their process from "prior processes involving removal, re-application of the bond coat and/or ceramic thermal barrier coating." (Col. 2, lines 49-60).

It is asserted that there is no teaching, suggestion or motivation that would lead one of ordinary skill in the art seeking to develop that which Applicants' claim to combine and then modify the teachings of the afore-cited references in an attempt to arrive at the subject claims. The TSM test provides helpful insights into the nonobviousness of the subject claims.

The Examiner's attention is further directed to the superior results described at pages 16-17 of the specification and shown in Fig. 3. As described therein, the tested NiAl coatings 21 produced <0.5x coating growth into the base metal as compared to conventional PtAl diffusion coatings.

In an objective analysis considering the scope and content of the afore-cited art, the level of ordinary skill in the art, and the differences between the claimed invention and the prior art, it is respectfully asserted that the Examiner's obviousness rejections should be reconsidered and withdrawn.

For the foregoing reasons, independent claims 1 and 7 are believed to be patentable. Accordingly, claims 2-6, and 8-13 and 28-30 depending from an independent claim are also believed to be in condition for allowance.

All issues having been addressed, the subject application is believed to be in condition for immediate allowance. Accordingly, such favorable action is earnestly solicited.

Should the Examiner believe that a discussion would advance the prosecution of the subject application, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted:

Christine W. Beninati 6/28/07

Christine Wilkes Beninati
Reg. No.: 37, 967
Customer No.: 29683
HARRINGTON & SMITH, LLP
4 Research Drive
Shelton, CT 06484-6212
Telephone: (203)925-9400 (Ext. 17)
Facsimile: (203)944-0245
email: cbeninati@hspatent.com

Date

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. BOX 1450, Alexandria, VA 22313-1450.

June 28, 2007 — Debra Pongetti

Date — Name of Person Making Deposit